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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,037	07/13/2001	Zine Eddine Boutaghou	STL 9721	2226

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Seagate Technology LLC  
Intellectual Property Department  
7801 Computer Avenue  
South-NRW097  
Bloomington, MN 55435

EXAMINER

VINH, LAN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/905,037

Applicant(s)

BOUTAGHOU, ZINE EDDINE

Examiner

Lan Vinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 10-13, 16, 17 and 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9, 14, 15 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, 14-15, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Wada et al (US 5,001,080).

Wada discloses a method for producing a monolithically integrated device comprises the steps of:

forming/positioning a patterned resist mask layer 3 over the structure/device 1(col 3, lines 25-30, fig. 1D)

using ion beam etching to etch the pattern into a surface of the structure/device 1 to form one sidewall and a round edge between the surface on the device and one sidewall in the pattern (col 35-40, fig. 1E shows a rounded edge 2 between the surface on the device and the sidewall

Regarding claim 2, Fig. 1E also shows the rounded edge/arcuate edge extends along the sidewall

Regarding claim 3, Wada discloses using ion beam etching to etch a mesa/opening in the substrate/device (col 3, lines 36-38)

Regarding claim 5, Fig. 1E shows the etching step forms an island, the sidewall octaed on an edge of the island

The limitations of claims 14-15 have been discussed above

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Regarding claim 18, Wada discloses the step of forming/applying resist mask layer 3 to the surface of the substrate/device (col 3, lines 26-28)

Regarding claim 19, Fig. 1G shows that the substrate 1 comprises more than one layer

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al (US 5,001,080) in view of Celler et al (US 4,581, 814)

Wada's method has been described above. Unlike the instant claimed inventions as per claims 6-9, Wada does not specifically disclose forming the patterned mask with variable spacing to produce/vary the rounded edge

However, Celler discloses a process for fabricating semiconductor device comprises the step of forming the patterned mask with variable spacing (col 5, lines 35-38)

Hence, one skilled in the art would have found it obvious to modify Wada method by forming the patterned mask with variable spacing to form a mask of varying sizes as taught by Celler (col 8, lines 36-38)

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5. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al (US 5,001,080) in view of Peterson et al (US 6,335,224)

Wada's method has been described above. Unlike the instant claimed inventions as per claims 20-21, Wada fails to disclose that the substrate/device is a MEMS device

Peterson discloses a method for protecting a microelectronic device (MEMS) using a rounded patterned masking layer 14 (col 7, lines 22-27, fig. 1C)

Since both Wada and Peterson are concerned with a method using rounded patterned masking layer, one skilled in the art would have found it obvious to employ Wada's rounded masking layer on a MEMS device in view of Peterson teaching because Peterson discloses that the MEMS elements are stabilized and protected by protective coating 14/rounded masking layer (col 8, lines 41-44)

#### ***Allowable Subject Matter***

6. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, the cited prior art of record fails to disclose the step of inserting a mating element into the opening on the device such that the rounded edge formed during the etching step permits the mating element to be inserted

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into an opening in the device without fracturing the device, in combination with the rest of the limitations of claim 4.

### ***Response to Arguments***

7. Applicant's arguments filed 8/16/2004 have been fully considered but they are not persuasive.

Applicants argue that Wada does not disclose, teach or suggest forming a rounded edge between a surface and a sidewall, as recited in claim 1 of the instant claimed invention because Fig. 1F of Wada does not show this rounded edge feature. This argument is unpersuasive because while it is true that Fig. 1F of Wada does not show this rounded edge feature, it is also true that Fig. 1F was not relied upon for providing the teaching of forming a rounded edge between a surface and a sidewall. Fig. 1E (that shows a rounded edge 2 between the surface on the device and the sidewall) was specifically cited for providing the above teaching in the previous office action. Thus, the examiner asserts that Wada discloses forming a rounded edge between a surface and a sidewall, as recited in claim 1.

Applicants also argue that although in Fig. 1E, Wada does shows photoresist layers 2 and 3, wherein the resist layers 2 and 3 are somewhat rounded, this rounded feature is provided in order to get a smooth slope 12 whereas claim 1 does not recite rounding a mask. This argument is unpersuasive because while it is true that claim 1 does not recite rounding a mask, it is also true that claim 1

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recites the language of "the method comprising" which does not exclude performing other steps in the claimed method.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LV

October 29, 2004